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SPECIFICATIONS

FOR

WIRING FOR ELECTRIC LIGHTING, ETC.,

FOR THE

NEW BUILDINGS, WARDS FOR CONTAGIOUS
DISEASES, ETC.,

ON THE

CITY HOSPITAL GROUNDS,

East Chester Park, Albany and Northampton Streets,

FOR THE

CITY OF BOSTON.

Architect's Department, City Hall.

BOSTON :

ROCKWELL AND CHURCHILL, CITY PRINTERS.

1893.

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Thos. S. ...
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TO CONTRACTORS.

Scaled proposals, accompanying the annexed contract and specifications, addressed to the Hon. Nathan Matthews, Jr., Mayor, and indorsed

PROPOSALS FOR WIRING FOR ELECTRIC LIGHT- ING, ETC., AND A TELEPHONE SYSTEM FOR THE NEW BUILDINGS, WARDS FOR CONTA- GIOUS DISEASES, ETC., ON THE CITY HOS- PITAL GROUNDS,

will be received at the office of the City Architect, City Hall,
Boston, until 12 o'clock M., 1893, and at that time
will be publicly opened and read.

The prices proposed must be stated both in writing and in figures, and all proposals containing bids not called for in this advertisement will be considered informal. Each bid must be signed by the bidder, and accompanied by a properly certified check for \$300, payable to the City of Boston; said check to be returned to the bidder unless forfeited under the condition herein stipulated.

A bond for the fulfilment of the contract is required with the contract, the sureties thereon must be residents of Massachusetts, and said sureties and the amount of the bond must be satisfactory to the City Architect; said bond to be not more than one-half and not less than one-fourth of the contract.

The contract is to be governed by the provisions of Section 6, Chapter 418 of the Acts of 1890, and the Ordinances and Building Laws of the City of Boston.

The person or persons to whom the contract may be awarded will be required to appear at this office, with the sureties offered by him or them, and execute the contract within four days (not including Sunday) from the date of notification of such award, and the preparation and readiness for signature of the contract; and in case of failure or neglect to do so, he or they will be considered as having abandoned it, and the check accompanying the proposal shall be forfeited to the city of Boston.

Specifications and plans may be seen at the office of the City Architect, City Hall, and the proposals are to be filled out on blank forms to be obtained at that office.

The City Architect reserves the right to reject any and all bids.

EDMUND M. WHEELWRIGHT,
City Architect.

PROPOSAL.

To HON. NATHAN MATTHEWS, JR., *Mayor*:

DEAR SIR:_____do hereby declare that_____ have carefully examined annexed form of contract and the specifications and the plans therein referred to and filed in the office of City Architect, City Hall, Boston, for the wiring for electric lighting and a complete system of electric bells and speaking-tubes, and the tubing for a telephone system, for the new buildings for contagious diseases, on the City Hospital grounds; and_____ will contract to do all the work and furnish all the materials called for or required by said plans and specifications, for the several buildings, as follows:

For all the work embraced within the specifications on the five buildings, viz.: gate-lodge, administration building, domestic building with connecting corridor, and two ward buildings with connecting corridors, for the sum of_____

_____ (\$_____).

The above proposal, subdivided as follows:

1. Wiring the gate-lodge for electric lights, \$_____
2. Wiring the administration building for electric lights \$_____
3. Wiring the domestic building and connecting corridor for electric lights . . . \$_____

4. Wiring Ward one building and connecting
corridor for electric lights \$ _____
5. Wiring Ward two building and connecting
corridor for electric lights \$ _____
6. Price per each extra outlet \$ _____
7. Electric bells, speaking-tubes, and tele-
phones, for the five buildings \$ _____

We propose to use _____
 make of wire.

GENERAL CONDITIONS.

CONTRACTORS SHALL HAVE NO CLAIM FOR COMPENSATION FOR INCREASE OR DECREASE OF WORK UNDER CLAUSE I. OF THIS CONTRACT, UNLESS THE SAME IS ORDERED IN WRITING BY THE CITY ARCHITECT, NOR UNLESS SUCH CLAIM IS PRESENTED TO THE CITY ARCHITECT IN WRITING BEFORE THE TWENTIETH DAY OF THE MONTH FOLLOWING THAT ON WHICH EACH SPECIFIC ORDER IS GIVEN, EITHER BY THE ARCHITECT OR HIS REPRESENTATIVE.

The true meaning and intent of this contract is, that the whole work shall be performed in the most thorough and workmanlike manner, and subject to the approval of the City Architect, and shall be in every respect in accordance with the Building Laws of the City of Boston. If the drawings show any discrepancy in respect to the requirements of the Building Laws of the City of Boston, the fact must be immediately reported to the Architect. If any other discrepancy or errors are noticed by the contractor, they are to be reported at once.

The contractor shall devote his time and personal superintendence to the execution of this contract, and shall employ a competent foreman, who shall at all times be present while any work is being done under this contract, at the building.

The contractor is to take out at his own expense all necessary permits from the municipal (or other public) authorities, to give all notices required by the law or municipal ordinance, and pay all fees or charges incident to the lawful prosecution of the work covered by this contract.

Said plans and specifications, together with this contract, of which they are to be deemed a part, are to be construed together, so that any work shown on the plans, though not mentioned in the specifications, or *vice versa*, or any provisions

of the contract not repeated in the plans or specifications or *vice versa*, is to be executed by the contractor as a part of this contract. Figured dimensions are to prevail over scale. All things which in the opinion of the Architect may fairly be inferred from the plans and specifications are to be executed by the contractor as a part of this contract. If complete drawings of detail have not yet been made the same, when made and conforming to said plans and specifications, are to constitute a part of this contract, the Architect being the sole judge as to whether said detailed drawings conform to said plans and specifications. The plans and drawings received by the contractor at any time during the continuance of this contract are at its termination to be returned to the City Architect, the same to be the property of the city.

The contractor shall have sole charge and possession of the work covered by this contract until the completion thereof, but shall permit the Architect and any person employed by him to visit, enter, and inspect the said work at all times and places during the progress thereof, and shall provide safe and proper facilities for such inspection.

The contractor shall permit other contractors or employees of the city to prosecute their work, and shall render them all necessary assistance, and shall recognize the General Superintendent of Construction and his assistants as the agent or agents of the City Architect.

The contractor shall dismiss any of his employees if the Architect considers said employees incompetent or careless or disobedient, or to act in a disorderly or improper manner, and so informs the contractor, and such persons shall not again be employed on the work.

The contractor shall make good all defects, omissions, and violations of the terms of this contract, whensoever discovered, during the progress of the work or afterwards, notwithstanding any payments that may have been made, or any certificates of payments that may have been given, or possession or accept-

ance of the work by the city, and shall be responsible for any damage that may be caused in making good said defects, omissions, or violations.

The City Architect is to select all materials provided for by "allowances," and is to approve bill for same, which is to be paid by the contractor. All excess of cost above the amount of the allowance is to be paid by the city, and the full unexpended balance (if any) between said allowance and the approved cost of same is to be deducted from the amount of the contract.

The contractor shall clean away all dirt and rubbish caused by his operations as often as requested by the Architect, and shall leave the premises, at the termination of this contract, free from such dirt and rubbish, and in a clean and neat condition.

INSURANCE.

THE CONTRACTOR MUST DEPOSIT AN INSURANCE POLICY COVERING THE FULL AMOUNT OF THE CONTRACT AT THE TIME THE FIRST ORDER FOR A PAYMENT ON ACCOUNT IS GIVEN BY THE CITY ARCHITECT.

REQUIREMENTS.

Before submitting a proposal, each bidder should make a careful examination of the drawings and specifications, and fully inform himself as to the quality of the materials and character of the workmanship required; and also make a careful examination of the place where the materials are to be delivered and the work performed; and should his proposal be accepted he will be held responsible for any and every error in his proposal resulting from his failure to do so.

SPECIFICATIONS.

Wherever the word "Architect" or a pronoun in place of it is used in this specification, the same is understood to mean the City Architect of Boston, Mass. (acting either directly or through his authorized agents).

The contractor for the electrical work is to be responsible for all materials and apparatus pertaining to his work in the building until accepted by the city.

QUALITY OF MATERIALS AND WORKMANSHIP.

The quality of all materials used throughout the entire installation, whether herein described or subsequently determined upon, shall be of the best which the market affords.

The workmanship shall be in all particulars of the highest grade, and all construction work shall be done by men skilled in the part which they are given to do.







PATENTS.

The contractor agrees to pay and indemnify the city against all damages and all costs including council fees of any claims or suits which may be brought for alleged infringements of patents by use of any article or work delivered under this contract.

PLANS AND SYMBOLS.

The approximate locations of lights, switches, and cutouts are given on the plans. The following symbols have been employed :

○	indicates	lamp outlet	keyless	socket	ceiling.
Q	“	“	“	key	“ “
⊥○	“	“	“	keyless	“ side bracket.

	indicates lamp outlet key socket side bracket.
	“ “ “ keyless socket side receptacle.
	“ “ “ key “ “ “
	“ a switch.
	“ a cutout.
	“ a cutout cabinet.

DRAWINGS.

All drawings must be considered as part of this specification, and must be strictly adhered to.

RULES.

All wiring and construction work must be done in strict accordance with the rules of the Boston Fire Underwriters' Union.

SAMPLES FOR INSPECTION.

Contractors must, at the request of the Architect, submit for inspection, samples of any wires, cutouts, and other materials which they wish to use.

GENERAL DESCRIPTION.

The contractor is to furnish and install all wires, tubes, insulators, supports, cutouts, switches, fixtures, shades, shade holders, lamps, and all other material necessary for a complete electric light wiring installation as hereinafter described.

The fixtures are to be of a make and design selected by the Architect. The contractor will allow in his proposal the sum of fifteen hundred dollars (\$1,500) for the fixtures, shades, and shade holders delivered on the ground packed and unwired.

The contractor is also to furnish and install all materials necessary for a complete system of electric bells and speaking tubes, and the tubing for the wires of a telephone system.

The contractor is to do all cutting and drilling of walls, etc., and to furnish all tools, implements, and labor requisite.

The work is to be done with as little inconvenience to those at work in the buildings as possible, and all refuse and unused material to belong to the contractor and must be removed by him as the work progresses. All parts of the buildings must be left in as good condition as before the work was begun.

Whenever anything requisite to the completion a first-class wiring installation is not particularly specified herein, it is nevertheless to be furnished of the best quality of materials and workmanship, and is to correspond with the remainder of the work herein specified.

SYSTEM.

The buildings are to be wired on a two-wire convertible system for 110 or 220 volts pressure.

MAINS, RISERS, AND TAPS CIRCUITS.

The mains from all the buildings are to be run to a centre of distribution in the basement of the administration building at the point marked A on the plan. At this point there is to be a cut-out box containing the cutouts for all the circuits running to the different buildings.

The mains from the point A are to be run through the corridors to the points marked C on the basement plans of the buildings.

From the points C risers are to be run from the basements to the tops of the buildings. Cutout cabinets are to be placed on the risers near the ceiling of each floor. All the tap circuits are to branch from these cutout cabinets.

There will be two sets of risers in each ward building and in the gate-lodge, one set in the administration building, and one set in the domestic building.

METHOD OF WIRING.

All wires in the basements and corridors are to be run in moulding, except in the basement of the administration building where the wires are to be run in metal-covered conduit.

All wires above the basements are to be run in metal-covered conduit.

The mains from the administration building to the gate lodge are to be run in a covered wooden-box laid in the ground. The mains are to be of a make approved by the Architect, and are to be rubber-covered wire protected by an outside covering of lead. The contractor is to dig and fill in the trench and is to furnish and install the wooden box and the mains.

CONDUIT WIRING.

Kind of Conduit.

All conduit must be metal covered.

Continuity.

The continuity of each tube to be strictly preserved, and all joints, elbows, etc., to be carefully made, in order that wires may be withdrawn, and replaced if desired.

Number of Wires Allowed.

In tap circuits where not more than 5 amperes are carried by the wires, two conductors may be placed in each tube, provided wire satisfactory to the Architect is used; but in all other cases but one wire will be allowed in the conduit.

Size.

All tubes must be of sufficient size to allow the wire to be readily withdrawn and reinserted, and tests will be made on the completed work to insure the fulfilment of this clause. No tube smaller than $\frac{3}{8}$ in. internal diameter will be allowed without

written permission of the Architect. No tube is to project from the surface of the wall more than $\frac{5}{8}$ of an inch.

Fastenings.

Tubes to be held in place by metal clips. No staples will be allowed unless absolutely necessary, and must be driven by special tool, without the use of which no staples will be permitted at all. Nails will not be allowed under any conditions.

Joints.

Tubes are to be squarely cut, reamed out, and the ends joined by a coupling, designed for that purpose, and by means of special tools made for this work. All joints to be well filled with white-lead.

Elbows.

In all cases where possible, elbows are to be avoided by running the conduit in easy bends of long radius.

Inserting Wires.

After the conduits are run, powdered soapstone is to be blown into the tubes, to facilitate drawing in the wire. Care must be taken in all construction work that the conduits, especially under the floor, do not become hurt. No wires to be inserted until plastering has been completed.

MOULDING WORK.

All moulding to be approved by the Architect before using, to have suitable capping, and to be well and carefully put up. Special care to be taken in nailing that no accident may occur to the wires. If not previously impregnated with paraffine or other moisture repellent, the moulding is to be shellacked or painted inside and out with water-proof paint, an additional coat being put on after the capping is in place.

WIRING ON INSULATORS.

All wiring done on insulators to be with porcelain knobs, fastened by screws, screwed in place by a screw-driver. No driving to be allowed, unless special drive screws are employed.

WIRING ON CLEATS.

All cleat work to be done with porcelain cleats, fastened by screws, screwed in place by a screw-driver. No driving to be allowed unless special drive screws are employed.

WATTS PER CANDLE POWER.

All wiring must be calculated on the basis of 60 watts for each lamp of 16-candle power.

LOSS OF POTENTIAL.

The total loss of potential between the centre of distribution in the administration building and any light shall not be greater than three volts or less than two volts under full load on the two-wire system.

The difference of potential between any two lights in the same building shall not be greater than $1\frac{1}{2}$ volt under any conditions.

CARRYING CAPACITY.

The carrying capacity of all wires, switches, and cutouts must be so calculated that they shall carry continuously the maximum load without in any case increasing in temperature more than 15 degrees centigrade above the surrounding air.

INSULATION RESISTANCE.

The total insulation resistance from the ground of the entire installation to be greater than 500,000 ohms, the resistance between mains with switches closed and the lamps out to be of an equal amount.

WIRE.

The contractor is to specify the make or makes of wire which he proposes to use throughout the installation. The wire is to be rubber covered, and protected by an outside braiding.

In no case shall more than 10-16 candle power lamps, or their equivalent, be fed from the same tap circuit.

Flexible cord or twin-wire must not be used under any conditions without the written consent of the Architect.

All wires not run in conduit must be protected by bushings of porcelain, or other satisfactory material, when passing through floors, walls, or woodwork.

No joints will be allowed in concealed work.

CUTOUTS.

All fuse boxes and cutouts are to be double pole, or single pole if one is provided for each main. They are to be constructed of slate or porcelain and the poles are to be separated by a distance sufficient to prevent the possibility of arcing when the fuse blows.

All cutouts are to be placed in cabinets furnished with locks and keys. These cabinets are to be made of hard-pine lined throughout with asbestos $\frac{1}{4}$ of an inch thick. The exterior is to be shellacked and is to be of neat and inconspicuous design, the front of the cabinet is to be flush with the finished surface of the wall.

FUSES.

Each cutout to be provided with copper-tipped fuses.

Fuses are to have a safe carrying capacity not exceeding the full load for the circuit they protect. They must not carry more than the safe load for the smallest wire in that circuit. The smaller sizes (up to 5 amperes) must fuse within twenty-five per cent. of their safe carrying capacity, and the larger sizes between twenty-five and fifty per cent.

An extra set of fuses must be provided.

All fuse-wire and links to be tested, and to be approved by the Architect.

SWITCHES.

All switches to be mounted on slate or porcelain bases, provided with close fitting covers, and of neat design, approved by the Architect, and should indicate clearly whether the circuit controlled is on or off.

Any switch not located in the room whose lights it controls, or where the circuit controlled is not clearly apparent, to be distinctly labelled to indicate the circuit controlled by it.

All switches to be double pole.

FIXTURES.

The contractor is to furnish and install all fixtures and sockets and make all connections between wires and fixtures.

All fixtures are to be combination gas and electric.

SOCKETS.

Sockets to be of good design, and samples to be submitted to the Architect for inspection.

LAMPS.

All lamps to be 16-candle power, unless otherwise specified in location sheets.

Lamps must be guaranteed to have an average life of at least 600 hours, and to require not more than 3.7 watts per mean horizontal candle power when at normal voltage.

All lamps failing within the first twelve hours of use shall be renewed by the Contractor without charge.

SHADES.

All fixtures are to be supplied with shades and shade holders.

LOCATION SHEET.

LOCATION.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
GATE-LODGE.							
<i>Basement.</i>							
Left . . . . .	..	4	4	4	4	16	4
Right . . . . .	..	4	4	4	4	16	4
Totals . . . . .	..	8	8	8	8	16	8
<i>First Floor.</i>							
Left.							
Corridor	2	..	2	2	2	16	2
Bed-room	1	..	1	1	1	16	1
Bed-room	1	..	1	1	1	16	1
Covered porch	2	..	2	2	2	16	2
Bed-room	1	..	1	1	1	16	1
Bed-room	1	..	1	1	1	16	1
Bath . . . . .	..	1	1	1	1	16	1
Right.							
Vestibule	1	..	1	1	1	16	1
Entry . . . . .	..	1	1	1	1	16	1
Attendant's room	1	2	3	3	3	16	3
Corridor	1	..	1	1	1	16	1
Attendant's toilet . . . . .	..	1	1	1	1	16	1
<i>Carried forward</i>	11	5	16	16	16	0	16

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>Brought forward</i>	11	5	16	16	16	0	16
Examination room	1	..	1	1	1	16	1
Examination room	1	1	2	2	2	16	2
Men's toilet . . . . .	..	1	1	1	1	16	1
Waiting-room	1	..	1	1	1	16	1
Toilet . . . . .	..	1	1	1	1	16	1
Covered porch	2	..	2	2	2	16	2
Totals	16	8	24	24	24	16	24
ADMINISTRATION BUILDING.							
<i>Basement.</i>							
Corridor (left)	1	..	1	1	1	16	1
Hall	1	..	1	4	4	16	4
Corridor (right)	1	..	1	1	1	16	1
Matron's store-room	1	..	1	1	1	16	1
Alcove	1	..	1	1	1	16	1
Nurses' toilet . . . . .	..	1	1	1	1	16	1
Vestibule	1	..	1	1	1	16	1
Alcove	1	..	1	1	1	16	1
Room	1	..	1	1	1	16	1
Toilet-room . . . . .	..	2	2	2	2	16	2
Physicians' and matrons' dining-room,	1	2	3	6	6	16	6
Serving-room	2	..	2	2	2	16	2
Nurses' dining-room	1	2	3	6	6	16	6
Totals	12	7	19	28	28	16	28

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	C. P. of lamps.	Total lamps.	Equivalent number 16 C. P. lamps.
<i>First Floor.</i>							
Vestibule	2	..	2	2	2	16	2
Reception hall	1	..	1	4	4	16	4
Vestibule	1	..	1	1	1	16	1
Right staircase	1	..	1	1	1	16	1
Waiting-room	1	1	2	2	2	16	2
Women's toilet . . . . .	..	1	1	1	1	16	1
Vestibule	1	..	1	1	1	16	1
Record	1	..	1	1	1	16	1
Alcove	1	..	1	1	1	16	1
Superintendent	1	2	3	4	4	16	4
Private room	1	..	1	1	1	16	1
Physicians' room	1	2	3	4	4	16	4
Private room	1	..	1	1	1	16	1
Private room	1	..	1	1	1	16	1
Alcove	1	..	1	1	1	16	1
Vestibule	1	..	1	1	1	16	1
Matron's room	1	1	2	2	2	16	2
Left staircase	1	..	1	1	1	16	1
Totals	18	7	25	30	30	16	30

LOCATION SHEET.—*Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>Second Floor.</i>							
Right staircase . . . . .	..	1	1	1	1	16	1
Right hall	1	1	2	2	2	16	2
Bed-room	1	1	2	2	2	16	2
Corner bed-room	1	2	3	3	3	16	3
Linen-closet . . . . .	..	1	1	1	1	16	1
Bath . . . . .	..	1	1	1	1	16	1
Corner bed-room	1	2	3	3	3	16	3
Corner bed-room	1	2	3	3	3	16	3
Corner bed-room . . . . .	..	3	3	3	3	16	3
Left staircase . . . . .	..	1	1	1	1	16	1
Left hall	1	1	2	2	2	16	2
Corner bed-room . . . . .	..	3	3	3	3	16	3
Toilet . . . . .	..	1	1	1	1	16	1
Bath . . . . .	..	1	1	1	1	16	1
Corner bed-room	1	2	3	3	3	16	3
Bed-room . . . . .	..	3	3	3	3	16	3
Totals	7	26	33	33	33	16	33

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of Lamps.	Equivalent number 16 C. P. lamps.
<i>Third Floor.</i>							
Stairway	1	..	1	1	1	16	1
Sitting-room	1	2	3	3	3	16	3
Linen closet	1	..	1	1	1	16	1
Closet	1	..	1	1	1	16	1
Hall . . . . .	..	1	1	1	1	16	1
Alcove . . . . .	..	2	2	2	2	16	2
Corner bed-room	1	2	3	3	3	16	3
Bed-room	1	2	3	3	3	16	3
Bed-room . . . . .	..	3	3	3	3	16	3
Passage	1	..	1	1	1	16	1
Bed-room . . . . .	..	2	2	2	2	16	2
Corner bed-room	1	2	3	3	3	16	3
Closet . . . . .	..	1	1	1	1	16	1
Hall . . . . .	..	1	1	1	1	16	1
Closet . . . . .	..	1	1	1	1	16	1
Corner bed-room	1	2	3	3	3	16	3
Bed-room	1	2	3	3	3	16	3
Bed-room	1	2	3	3	3	16	3
Totals	11	25	36	36	36	16	36

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
DOMESTIC BUILDING.							
<i>Basement.</i>							
Corridor . . . . .	..	5	5	5	5	16	5
Steward's stores . . . . .	..	1	1	1	1	16	1
Store room	1	..	1	1	1	16	1
Men's toilet . . . . .	..	1	1	1	1	16	1
Women's toilet . . . . .	..	1	1	1	1	16	1
Stairway hall	1	..	1	1	1	16	1
Bread-closet	1	..	1	1	1	16	1
Druggists' stores	1	..	1	1	1	16	1
Bakery	1	2	3	3	3	16	3
(One bracket to be provided with cord and portable socket to reach into baker's oven.)							
Kitchen	3	1	4	4	4	16	4
(Bracket to be provided with cord and portable socket to reach into cook's oven.)							
Stores	1	..	1	1	1	16	1
Stores	1	..	1	1	1	16	1
Totals	16	5	21	21	21	16	21
<i>First Floor.</i>							
Main dining-room	2	..	2	4	4	16	4
Pantry-closet . . . . .	..	1	1	1	1	16	1
Carried forward	2	1	3	5	5	0	5

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>Brought forward</i>	2	1	3	5	5	0	5
Serving-room	1	..	1	2	2	16	2
Dispensary	1	1	2	2	2	16	2
Dispensary	1	..	1	4	4	16	4
Stairway	1	..	1	1	1	16	1
Nurses' dining-room	1	..	1	1	1	16	1
Nurses' dining-room	1	..	1	1	1	16	1
Corridor	1	..	1	1	1	16	1
Totals	9	2	11	17	17	16	17
<i>Second Floor.</i>							
Stairway hall	1	..	1	1	1	16	1
Bed-room . . . . .	..	1	1	1	1	16	1
Corner bed-room . . . . .	..	1	1	1	1	16	1
Corridor	1	..	1	1	1	16	1
Corner bed-room . . . . .	..	1	1	1	1	16	1
Bed-room	1	..	1	1	1	16	1
Toilet	1	1	2	2	2	16	2
Bath	1	..	1	1	1	16	1
Trunk-room . . . . .	..	1	1	1	1	16	1
Corner bed-room . . . . .	..	1	1	1	1	16	1
Corridor	1	..	1	1	1	16	1
Corner bed-room	1	..	1	1	1	16	1
Totals	7	6	13	13	13	16	13

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
WARD ONE.							
<i>Basement.</i>							
Corridor	2	..	2	2	2	16	2
Cross-corridor	3	..	3	3	3	16	3
Staircase entry	1	..	1	1	1	16	1
Patients' clothes	2	..	2	2	2	16	2
Corridor	3	..	3	3	3	16	3
Patients' clothes	2	..	2	2	2	16	2
Cylinder-room . . . . .	..	2	2	2	2	16	2
Cross-corridor	4	..	4	4	4	16	4
Gown-room	1	..	1	1	1	16	1
Lobby	1	..	1	1	1	16	1
Staircase entry	1	..	1	1	1	16	1
Toilet	1	1	2	2	2	16	2
Lobby	1	..	1	1	1	16	1
Gown-room	1	..	1	1	1	16	1
Disrobing-room	1	3	4	4	4	16	4
Totals	24	6	30	30	30	16	30

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>First Floor.</i>							
Ward (ten beds)	2	11	13	13	13	16	13
(Lights to be placed close to windows on right-hand side of bed as you face the foot.)							
Corridor	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Toilet	1	..	1	1	1	16	1
Bath	3	..	3	3	3	16	3
Operating room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Cross-corridor	3	..	3	3	3	16	3
Corridor	4	..	4	4	4	16	4
Stairway	1	..	1	1	1	16	1
Linen-closet	2	..	2	2	2	16	2
Toilet and bath	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Ward (four beds)	2	..	2	2	2	16	2
Duty-room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Medicine-closet . . . . .	..	1	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Ward (four beds)	2	..	2	2	2	16	2
<i>Carried forward.</i>	34	14	48	48	48	0	48

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number in C. P. lamps.
<i>Brought forward</i>	34	14	48	48	48	0	48
Cross-corridor	4	..	4	4	4	16	4
Double ward	1	..	1	1	1	16	1
Lobbies	2	..	2	2	2	16	2
Duty-room	1	..	1	1	1	16	1
Staircase entry	1	..	1	1	1	16	1
Toilet and bath	1	2	3	3	3	16	3
Lobbies	2	..	2	2	2	16	2
Duty-room	1	..	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Totals	48	16	64	64	64	16	64
<i>Second Floor.</i>							
Ward (ten beds)	2	11	13	13	13	16	13
(Lights to be placed close to windows on right-hand side of the bed as you face the foot.)							
Operating-room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Corridor	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Toilet	1	..	1	1	1	16	1
Bath	3	..	3	3	3	16	3
<i>Carried forward</i>	13	12	25	25	25	0	25

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>Brought forward</i>	13	12	25	25	25	0	25
Cross-corridor	3	..	3	3	3	16	3
Staircase entry	1	..	1	1	1	16	1
Linen-room	2	..	2	2	2	16	2
Bath	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Corridor	4	..	4	4	4	16	4
Duty-room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Medicine-closet . . . . .	..	1	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Ward (four beds)	2	..	2	2	2	16	2
Ward (four beds)	2	..	2	2	2	16	2
Cross-corridor	4	..	4	4	4	16	4
Double ward	1	..	1	1	1	16	1
Duty-room	1	..	1	1	1	16	1
Lobbies	2	..	2	2	2	16	2
Staircase entry	2	..	2	2	2	16	2
Elevator	1	..	1	1	1	16	1
Toilet and bath	1	2	3	3	3	16	3
Duty-room	2	..	1	1	1	16	1
Lobbies	1	..	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Totals	50	16	66	66	66	16	66

LOCATION SHEET.—*Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number to C. P. lamps.
WARD TWO.							
<i>Basement.</i>							
Corridor	2	..	2	2	2	16	2
Cross-corridor	3	..	3	3	3	16	3
Staircase entry	1	..	1	1	1	16	1
Patients' clothes	2	..	2	2	2	16	2
Corridor	3	..	3	3	3	16	3
Patients' clothes	2	..	2	2	2	16	2
Cylinder-room . . . . .	..	2	2	2	2	16	2
Cross-corridor	4	..	4	4	4	16	4
Gown-room	1	..	1	1	1	16	1
Lobby	1	..	1	1	1	16	1
Staircase entry	1	..	1	1	1	16	1
Toilet	1	1	2	2	2	16	2
Lobby	1	..	1	1	1	16	1
Gown-room	1	..	1	1	1	16	1
Disrobing-room	1	3	4	4	4	16	4
Totals	24	6	30	30	30	16	30

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>First Floor.</i>							
Ward (ten beds)	2	11	13	13	13	16	13
(Lights to be placed close to windows on right-hand side of bed as you face the foot.)							
Corridor	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Toilet	1	..	1	1	1	16	1
Bath	3	..	3	3	3	16	3
Operating-room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Cross-corridor	3	..	3	3	3	16	3
Corridor	4	..	4	4	4	16	4
Stairway	1	..	1	1	1	16	1
Linen-closet	2	..	2	2	2	16	2
Toilet and bath	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Ward (four beds)	2	..	2	2	2	16	2
Duty-room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Medicine closet . . . . .	..	1	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
<i>Carried forward</i>	32	14	46	46	46	0	46

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number C. P. of lamps.
<i>Brought forward</i>	32	14	46	46	46	0	46
Ward (four beds)	2	..	2	2	2	16	2
Cross-corridor	4	..	4	4	4	16	4
Double ward	1	..	1	1	1	16	1
Lobbies	2	..	2	2	2	16	2
Duty-room	1	..	1	1	1	16	1
Staircase entry	1	..	1	1	1	16	1
Toilet and bath	1	2	3	3	3	16	3
Lobbies	2	..	2	2	2	16	2
Duty-room	1	..	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Totals	48	16	64	64	64	16	64
<i>Second Floor.</i>							
Ward (ten beds)	2	11	13	13	13	16	13
(Lights to be placed close to windows on right-hand side of the bed as you face the foot.)							
Operating-room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Corridor	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Toilet	1	..	1	1	1	16	1
<i>Carried forward</i>	10	12	22	22	22	0	22

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>Brought forward</i>	10	12	22	22	22	0	22
Bath	3	..	3	3	3	16	3
Cross-corridor	3	..	3	3	3	16	3
Staircase entry	1	..	1	1	1	16	1
Linen-room	2	..	2	2	2	16	2
Bath	3	..	3	3	3	16	3
Double ward	1	..	1	1	1	16	1
Corridor	4	..	4	4	4	16	4
Duty-room	1	1	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Medicine closet . . . . .	..	1	1	1	1	16	1
Double ward	1	..	1	1	1	16	1
Ward (four beds)	2	..	2	2	2	16	2
Ward (four beds)	2	..	2	2	2	16	2
Cross corridor	4	..	4	4	4	16	4
Double ward	1	..	1	1	1	16	1
Duty-room	1	..	1	1	1	16	1
Lobbies	2	..	2	2	2	16	2
Staircase entry	2	..	2	2	2	16	2
Elevator	1	..	1	1	1	16	1
Toilet and bath	1	2	3	3	3	16	3
Duty-room	1	..	1	1	1	16	1
Lobbies	2	..	2	2	2	16	2
Double ward	1	..	1	1	1	16	1
Totals	50	16	66	66	66	0	66

LOCATION SHEET. — *Continued.*

LOCATION.	Lamp outlets. Ceiling.	Lamp outlets. Slide.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
CORRIDOR.							
(From administration building to domestic building).	3	..	3	3	3	16	3
<i>Right Corridor.</i>							
(From administration building to dormitory)	6	..	6	6	6	16	6
<i>Left Corridor.</i>							
(From administration building to dormitory).	6	..	6	6	6	16	6
Totals	15	..	15	15	15	16	15
SUMMARY.							
<i>Gate-Lodge.</i>							
Basement . . . . .	..	8	8	8	8	16	8
First floor	16	8	24	24	24	16	24
<i>Administration Building.</i>							
Basement	12	7	19	28	28	16	28
First floor	18	7	25	30	30	16	30
Second floor	7	26	33	33	33	16	33
Third floor	11	25	36	36	36	16	36
<i>Domestic Building.</i>							
Basement	16	5	21	21	21	16	21
First floor	9	2	11	17	17	16	17
Second floor	7	6	13	13	13	16	13
<i>Carried forward</i>	96	94	190	210	210	0	210

LOCATION SHEET. — *Concluded.*

LOCATION.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Total outlets.	Key sockets.	Total lamps.	C. P. of lamps.	Equivalent number 16 C. P. lamps.
<i>Brought forward</i>	96	94	190	210	210	0	210
<i>Ward One.</i>							
Basement	24	6	30	30	30	16	30
First floor	48	16	64	64	64	16	64
Second floor	50	16	66	66	66	16	66
<i>Ward Two.</i>							
Basement	24	6	30	30	30	16	30
First floor	48	16	64	64	64	16	64
Second floor	50	16	66	66	66	16	66
Corridors	15	..	15	15	15	16	15
Totals	355	170	525	545	545	0	545

BELLS AND SPEAKING-TUBES.

A complete list of the bells and tubes, and the location of the same, is given at the end of the specifications.

The locations of bells are indicated on the plans by the letter R. The locations of push-buttons are indicated on plans by the letter P.

Method of Running Wires.

All wires for electric bells are to be run in conduit.

Conduit.

Conduit is to be run in a similar manner to that used for the electric-light wires, except that metal conduit need not be used, and in all cases a separate tube must be run for each wire.

Wire.

No. 16 office wire is to be used throughout.

No joints will be allowed in concealed work.

Bells, Batteries, Annunciators, and Push-buttons.

Suitable supports must be provided for all bells, batteries, and annunciators.

Bells, batteries, annunciators, and push-buttons must be of make and design approved by the Architect.

Speaking-tubes.

Tubes must not project more than $\frac{5}{8}$ of an inch from the surface of the terra-cotta or brick walls.

Tubes must be secured in place by metal strips; staples or nails must not be used for this purpose in any case.

The length of all tubes must be made as short as possible, and the number of corners must be made as small as possible.

Hexagonal corners must be used in all cases. All tubes must be air-tight, and all joints must be made air-tight by use of white-lead.

Where tubes will be subjected to dampness they must be painted with P.B. paint, or its equivalent.

TELEPHONES.

A complete list of the telephones, and the location of the same, is given at the end of the specifications.

The locations of telephones are indicated on the plans by the letter T.

The contractor is simply to run the conduit for the telephone wires. This conduit is to be run in a similar manner to that used for electric-light wires. A single metal-covered tube is to be run from the location of each telephone to the basement of the building. After the plastering is completed, the contractor must draw a pair of number 14 rubber covered wires through the tube to make sure that it is clear.

LOCATION OF BELLS AND SPEAKING-TUBES.

Gate-Lodge.

A bell and speaking-tube from the front door to the attendants' room. The push-button at the door and the bell in the attendants' door.

A bell and speaking-tube from the attendants' room to the examination room, with a bell and push-button at each end.

A bell and speaking-tube from the waiting room to the examining room, with a bell and push-button at each end.

Annunciators must be placed in the attendants' room and in the examination room to indicate the point from which the bell has been rung.

Administration Building.

A bell and speaking-tube from the superintendent's office to the physicians' room. Bell and push-button at each end.

A bell and speaking-tube from the superintendent's office to the matron's room. Bell and push-button at each end.

A bell and speaking-tube from the superintendent's office to

each of the halls on the second floor. Bell and push-button at each end.

A bell and speaking-tube from the superintendent's office to the passage on the third floor. Bell and push-button at each end.

An annunciator must be placed in the superintendent's office to indicate the point from which the bell has been rung.

Domestic Building.

A bell and speaking-tube from the staircase hall to the kitchen. Bell and push-button at each end.

A bell and speaking-tube from the staircase hall to the bakery. Bell and push-button at each end.

Bell and speaking-tube from the staircase hall to the second-floor corridor. Bell and push-button at each end.

An annunciator must be placed in the staircase hall to indicate the point from which the bell has been rung.

Bell and dumb-waiter in main dining-room with the push-button at the dumb-waiter in the basement.

A bell and speaking-tube from the gate at Northampton street to the kitchen. The push-button at gate and the bell in the kitchen.

The speaking-tube and bell wires are to be run underground in a suitable water-tight duct of such size and material that the wires may be easily withdrawn and reinserted. The wires are to be rubber covered, protected with an outside braiding.

Ward Building No. 1.

Two push-buttons in the basement at the dumb-waiters in the room for the patients' clothes, with one bell at the dumb-waiter in the first-floor duty-room, and the other at the dumb-waiter in the second-floor duty-room.

Five push-buttons, a bell, and an annunciator in each of the six duty-rooms. These bells to be so arranged that from each duty-room a bell can be rung in any of the other duty-rooms.

Ward Building No. 2.

Two push-buttons in the basement at the dumb waiters in the room for the patients' clothes, with one bell at the dumb waiter in the first-floor duty-room, and the other at the dumb waiter in second-floor duty-room.

Five push-buttons, a bell, and an annunciator in each of the six duty-rooms. These bells to be so arranged that from each duty-room a bell can be rung in any of the other duty-rooms.

LOCATION OF TELEPHONES.

Gate-Lodge.

One in the corridor on the first floor of the left wing.

One in the attendants' room on the first floor of the right wing.

Administration Building.

One in the private office on the first floor.

Domestic Building.

One in the staircase hall on the first floor.

Ward No. 1.

One in each of the six duty-rooms.

One in the corridor on the first floor.

One in the corridor on the second floor.

One in each of the four anterooms at the West Chester park end of the building.

Ward Building No. 2.

One in each of the six duty-rooms.

One in the corridor on the first floor.

One in the corridor on the second floor.

One in each of the four anterooms at the West Chester park end of the building.

C O N T R A C T

FOR

WIRING FOR ELECTRIC LIGHTING, ETC.,

AND A

TELEPHONE SYSTEM FOR THE NEW BUILDINGS,
WARDS FOR CONTAGIOUS DISEASES, ETC.,

ON THE

CITY HOSPITAL GROUNDS,

FOR THE

CITY OF BOSTON.

Contractor, and the city of Boston, on this _____

day of _____ A.D. 1893, agree as follows :

(1.) Said contractor shall furnish all the materials and labor, and do everything required for providing the plant and the proposed construction, in all respects in accordance with the specifications hereto annexed and the plans for said work, prepared by the City Architect of said city; and said Architect may make alterations in the plan, form, dimensions, or material of the work herein contemplated, either before or after the commencement of construction, and if such alterations increase the quantity of work to be done, such increase shall be paid for according to the quantity actually done, and at the price established for such work under this contract; and if there is no price established, then the price shall be fixed by said Architect, with the approval of the Mayor of said city, in writing; and if they decrease the quantity of work to be done, any damage actually done to said contractor thereby shall be estimated and fixed by said Architect, with the approval of the Mayor of said city, in writing; and if they make the work less expensive to the contractor, a proportional deduction shall be made from the contract price as determined by said Architect, with the approval in writing of the Mayor of said city. All materials and workmanship must be of the best of their class throughout, and be furnished and done under the supervision and to the entire satisfaction in every respect of said Architect.

(2.) Said contractor shall do everything necessary to the completion of the work, drawn on plans and not specified or described, or specified or described and not drawn on plans; shall follow accurately the plans, but shall follow figured dimensions in

preference to scale dimensions ; shall construct the detail work in accordance with full-size drawings to be furnished by the said Architect, and shall take down and replace at his own expense any work constructed without such drawings, or not in accordance with them. He shall return all plans and drawings to the City Architect at the completion of the work, the same to be the property of the city.

(3.) Said contractor shall have no claim for compensation for increase or decrease of work under Clause 1, or for extra work, unless the same is ordered in writing by said architect, nor unless such claim is presented to the City Auditor, in writing, before the twentieth day of the month following that during which each specific order is complied with.

(4.) Said contractor shall not assign or sublet this contract, or any part of it, to parties other than those mentioned in his proposal, without the previous written consent thereto of said Architect.

(5.) Said contractor shall complete the work to the satisfaction of said Architect on or before the _____

day of _____ 189 ; provided, however, that in case of a delay caused by a strike of the workmen employed on said work, additional time, equal to such delay, shall be allowed for such completion.

(6.) Said contractor shall indemnify and save harmless said city from all claims against said city, relating to liens, and from all claims for labor done and materials furnished for work done under this contract, and shall satisfy said Architect that all persons who have done work or furnished materials for work done under this contract, for which the said city may become liable, and all claims from the various departments of said city, and from private corporations, and individuals, for damage of any kind arising in any manner from the construction of said work, have been fully paid or satisfactorily secured ; and in case said Architect is not satisfied, an amount necessary and sufficient to

meet the claims of the persons aforesaid shall be retained from any moneys due, or that may become due, the said contractor of said city, until the liabilities aforesaid, if any, shall be fully discharged or satisfactorily secured.

(7.) Said contractor shall indemnify and save harmless said city from all claims, suits, or actions against said city, for or on account of any injuries or damages received or sustained by any person or persons, by or from said contractor, or his employees, in the construction of said work, or by or in consequence of any negligence in doing or guarding the same, or by or in consequence of any improper materials used in its construction, or by or on account of any act or omission of said contractor or his employees; and so much of the money due to said contractor from said city as shall be considered necessary by said Architect may be retained by said city until all such claims, suits, and actions aforesaid shall have been settled and satisfactory evidence to that effect furnished to said Architect.

(8.) Said Architect, if at any time dissatisfied with any part or with the progress of the work, may, after three days' written notice to that effect to said contractor, correct any imperfection in the work at the expense of said contractor, or may enter upon or take possession of said work and complete the same according to the contract, and the cost thereof shall be paid by said contractor; and said city may retain any moneys due said contractor in payment of such cost.

(9.) Said city of Boston shall pay to said contractor for said material furnished and work done, as aforesaid, the sum of

Said sum to be paid in instalments, from time to time, as the work progresses, to an amount not to exceed seventy-five per cent. of the value of such work done and materials furnished, as estimated by and upon the certificate of said Architect; the last payment to be reserved for thirty-one days after the completion and acceptance of the whole work; provided, however, that if

said Architect deem it expedient so to do, he may direct the retention out of any sum due under this contract of an amount sufficient to cover the unpaid claims of mechanics or laborers for labor or materials for said work, notice of which, signed by the claimants, has been previously filed in the office of the City Architect of said city.

(10.) A residue of twenty-five per cent. will be held by the City Architect, and until the apparatus has been fully tested sixty days, to the entire satisfaction and approval of the City Architect.

CITY OF BOSTON

By

City Architect.

Know all men by these presents,

That _____

_____ principal,

and _____

_____ sureties,

are held, and firmly bound unto the CITY OF BOSTON, in

the sum of _____

dollars, lawful money of the United States of America, to be paid to the said CITY OF BOSTON, or its representatives, for which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, firmly by these presents.

The Condition of this obligation is,
that if the said principal shall well and truly keep and perform all the terms and conditions on his part to be kept and performed, of a contract made by said principal with the CITY

OF BOSTON, bearing date the _____

day of _____, one thousand eight hundred

and ninety _____, [for building a heating, ventilating,

and blast system at the Mechanic Arts High School in said Boston], and shall indemnify and save harmless the said CITY OF BOSTON, as therein stipulated, then this obligation shall be null and of no effect, otherwise it shall remain in full force and virtue.

SIGNED AND SEALED in the presence of

Form and execution of contract and bond approved.

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